Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550 3650 MHz Band	))))	GN Docket No. 12-354

REPLY COMMENTS OF THE UTILITIES TELECOM COUNCIL

Pursuant to Section 1.405 of the Commission's Rules, the Utilities Telecom Council ("UTC") hereby files the following reply comments in response to the Commission's Notice of Proposed Rulemaking and Order in the above-referenced matter.[1] UTC reiterates its support for the Commission's proposal to adopt a multi-tiered framework that would include a Priority Access tier that would be made available for mission critical communications, such as those by utilities. This multi-tiered framework would protect incumbent operations while ensuring that priority access is provided for services that need it. At the same time, consumer applications would be effectively supported through the General Authorized Access (GAA) tier. By contrast, a two-tier framework that mixes consumer applications with mission critical services would more likely lead to congestion and interference in the band. UTC also joins the numerous other commenting parties that urge the Commission to reduce the size of exclusion zones and to combine the 3.5 GHz band (3550-3650 MHz) with the 3.65 GHz band (3650-3700 MHz). Finally, UTC continues to support the establishment of the Spectrum Access System (SAS) database and the proposed technical requirements in order to coordinate operations and protect against interference.

I. The Commission Should Provide a Priority Access Tier in the Lower Half of the 3.5 GHz band for Mission Critical Communications, including Utilities and Other Critical Infrastructure Industries.

UTC reiterates its support for the Commission's proposal for a multi-tiered framework that includes a Priority Access tier for small cell use by certain critical, quality-of-service

[1] *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band* Notice of Proposed Rulemaking and Order, GN Docket No. 12-354, 2012 WL 6463547 (Dec. 12. 2012)(hereinafter "NPRM").

dependent users, such as utilities and other critical infrastructure industry entities that rely on mission critical communications.[2] Other commenting parties support priority access to the band by utilities, and to segment the band so that the Priority Access tier would have access to the 3550-3600 MHz portion of the 3.5 GHz band.[3]

The Commission's proposal for a Priority Access tier would make efficient use of the band, because there is a substantial user base represented by utilities and critical infrastructure industries, as well as other potentially eligible entities such as hospitals, state and local governments, and/or other users with a distinct need for reliable, prioritized access to broadband spectrum at specific, localized of facilities.[4] At the same time, limiting eligibility to these entities would help to prevent interference and congestion, which might otherwise inhibit and discourage the use of the band by utilities, critical infrastructure industries and others that provide important

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[2] *See* Comments of the Utilities Telecom Council, Edison Electric Institute, and National Rural Electric Cooperative Association in ET Docket No. 12-354 at 1-2, *citing* NPRM at ¶9 (filed Feb. 20, 2013)(hereinafter "UTC, EEI and NRECA").

[3] *See* Comments of Great River Energy in ET Docket No. 12-354 at 3 (filed Feb. 20, 2013)(" GRE supports the idea of three tiers of service, which includes a Priority Access Tier, which would be available for use by critical users such as utilities"); *and* Comments of Ron Taylor on behalf of Salt River Project in ET Docket No. 12-354 at 1 (filed Feb. 20, 2013)(hereinafter "Comments of SRP")("SRP agrees with the Commission that utilities should be included for eligibility to access the Priority Access tier."). *See also* Comments of the Wireless Internet Service Providers Association in ET Docket No. 12-354 at 5 (filed Feb. 20, 2013)(stating "WISPA agrees it would be appropriate to separate Priority Access spectrum from other portions of the band, and as shown in the diagram above, recommends that the 3550-3600 MHz segment be designated for Priority Access."); Comments of Cambium Networks in ET Docket No. 12-354 at 2 (filed Feb. 20, 2013)("Industrial and Utility networks are furthering their use of supervisory control and data acquisition (SCADA) networks as well as the video monitoring of critical infrastructure. Many locations require wireless access due to the lack of cost effective wireline alternatives. The 3550-3650MHz spectrum could be used for these applications."); Comments of Public Interest Spectrum Coalition at 23-24 (explaining that the Commission could use the current definition of "critical infrastructure industry" entities at Section 90.7 of the Commission's Rules as the basis for the scope of eligibility in the Priority Access tier); *and* Comments of Microsoft in ET Docket No. 12-354 at 8 (stating that "[t]he Commission's Flexible Three-Tier Proposal Strikes the Right Balance Between Protecting Incumbent Users and Encouraging New Technologies."; and stating "Microsoft supports the Commission's proposal to create a second tier of narrowly-defined 'priority users,' which receive priority access in a portion of the 3.5 GHz band…and suggests that this category include hospitals, utilities, and emergency providers with a distinct need for quality of service.").

[4] NPRM at ¶9 (proposing that eligibility in the Priority Access tier include "hospitals, utilities, state and local governments, and/or other users with a distinct need for reliable, prioritized access to broadband spectrum at specific, localized of facilities.")

public services. This has been a problem in other bands, including the 3.65 GHz band. Thus, the Commission should adopt its proposal to limit eligibility in the Priority Access tier to utilities and others that rely on mission critical communications, and to protect users in that tier from interference from commercial service providers and other consumer applications in the GAA tier.[5]

Moreover, the Priority Access tier would help to provide access to spectrum that is desperately needed and which UTC and others have sought in order to support smart grid and other applications that support the safe, reliable and efficient delivery of essential electric, gas and water services to the public at large.[6] Utilities and other critical infrastructure industry entities lack access to suitable spectrum, and providing such access would support overarching national policy goals.[7] Access to the 3.5 GHz band would also be consistent with the recommendations in the National Broadband Plan,[8] which explained that "[i]dentifying a nationwide band in which Smart Grid networks could operate would speed deployment of a

[5] Comments of UTC, EEI and NRECA at 15 (stating that "the Commission is correct in its approach that (in addition to protecting Priority Access and Incumbent Access tier users as outlined above) not to provide GAA with any expectation of interference protection from either Priority Access tier or Incumbent Access tier operations."); Comments of Great River Energy at 3 ("GRE agrees that Priority Access operations would only be permitted in geographic zones where there is no likelihood of harmful interference from Incumbent Access users and no expectation of harmful interference to Incumbent Access users. GRE also agrees that Priority Access users should be required to register in the SAS and accorded protection from interference from lower tier users and other Priority Access users within their geographic areas."); *and* Comments of SRP at 1 ("SRP agrees that geographic separation and database management should provide Priority Access users with a usable quality of service capability."). *See also* Comments of Software Defined Radio Forum, Inc. dba the Wireless Innovation Forum in ET Docket No. 12-354 at 4 (filed Feb. 20, 2013)("The Forum believes that a priority access tier should be implemented. In addition, if critical safety-of-life applications are to be permitted in this tier, then they should be given priority access.").

[6] Comments of UTC, EEI and NRECA at 7. *See also* AEP Comments in response to the Commission's Public Notice #2 in the National Broadband Plan proceeding (hereinafter NBP PN#2), GN Docket No. 09-51, filed Oct. 2, 2009; Centerpoint Comments in re NBP PN #2, filed Oct. 2, 2009; UTC Comments in re NBP PN #2, filed Oct. 2, 2009; Edison Electric Institute in re NBP PN #2, filed Oct. 2, 2009.

[7] *See e.g.* Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594; Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 at § 1304 (2007) codified at 42 U.S.C. § 17384; and the American Recovery and Reinvestment Act of 2009, P.L. 111-5, 123 Stat. 115 (2009).

[8] National Broadband Plan, Recommendation 12.5.

standardized and interoperable broadband Smart Grid, [and that] [e]stablishing a nationwide band would also promote vendor competition and lower equipment costs."[9]

The Commission should not eliminate the Priority Access tier or expand eligibility in it to include commercial service providers, as some comments suggested.[10] The public interest would not be served by eliminating the Priority Access tier or including commercial service providers and other similar entities in it. As discussed above, this would increase the potential for congestion and interference in the band, notwithstanding the capabilities of the Spectrum Access System (SAS) to help coordinate operations. This would defeat the purpose of making this spectrum available for mission critical communications, and would threaten incumbent radar and fixed satellite services (FSS) in the band.

Conversely, the need for access to the band by commercial service providers can be effectively met by providing them with access to the GAA tier. Not only would it provide sufficient bandwidth, but the GAA tier would provide access to geographic areas that fall within the proposed exclusion zones, and which the Commission estimates to include 60 percent of the population of the country. Therefore, the Commission has appropriately balanced the interests in proposing a multi-tiered framework, including a Priority Access tier for utilities and others that need spectrum for mission critical communications.

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[9] *Id.*, *citing* Comments of Sempra in re NBP PN #2, filed Oct. 2, 2009, at 15; Comments of AEP Comments in re NBP PN #2, filed Oct. 2, 2009; Centerpoint Comments in re NBP PN #2, filed Oct. 2, 2009; UTC Comments in re NBP PN #2, filed Oct. 2, 2009.

[10] *See e.g.* Comments of CTIA in ET Docket No. 12-354 at 15-16 (filed Feb. 20, 2013)(urging the Commission to consider a two-tiered approach, including one tier that would be licensed for commercial use exclusively). *See also* Comments of the Consumer Electronics Association in ET Docket No. 12-354 at 5 (filed Feb. 20, 2013)(urging the Commission to expand eligibility in the Priority Access tier to all users.)

II. The Commission Should Reduce the Size of Exclusion Zones and Integrate the 3.65 GHz Band with the 3.5 GHz Band.

UTC continues to urge the Commission to reduce the size of exclusion zones.[11] Numerous other commenting parties also support this issue.[12] As UTC and these other commenting parties explain, the exclusion zones should be significantly reduced, considering the use of small cells in the band and other interference mitigation strategies.[13] Also, the Commerce Spectrum Management Advisory Committee has found that exclusion zones proposed in the NTIA's Fast Track report to protect federal incumbents could be significantly reduced, and recommended adopting a framework for greater spectrum sharing including Protection Zones instead of exclusion zones.[14] There is also widespread support on the record that the 150 km exclusion zone in the 3.65 GHz band would not be appropriate as a benchmark to use in the 3.5 GHz band, and that it should be significantly reduced.[15]

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[11] Comments of UTC, EEI and NRECA at 11-12.

[12] Comments of the Consumer Electronics Association in ET Docket No. 12-354 at 8-9 (filed Feb. 20, 2013); Comments of the Information Technology Industry Council in ET Docket No. 12-354 at 6-7 (filed Feb. 20, 2013); Comments of Motorola Solutions, Ltd. in ET Docket No. 12-354 at 7-8 (filed Feb. 20, 2013); Comments of Nokia Siemens Networks US, LLC in ET Docket No. 12-354 at 21-23 (filed Feb. 20, 2013); Comments of Shared Spectrum Company in ET Docket No. 12-354 at 3-5 (filed Feb. 20, 2013); and Comments of Qualcomm in ET Docket No. 12-354 at 16-18 (filed Feb. 20, 2013).

[13] *See e.g.* Comments of the Information Technology Industry Council at 7 (stating that "it may be possible that enhanced databases could more efficiently facilitate sharing the 3550MHz spectrum rather than merely relying on large permanent exclusion zones to protect incumbents. For example, if real-time information about incumbent use of the spectrum were available to the Spectrum Access System, perhaps exclusion zones could be greatly reduced, or would not be necessary at all, during periods when the incumbent user was not in need of it.")

[14] *See*, U.S. Dept. of Commerce, Identification of 15 Megahertz of Spectrum between 1675-1710 MHz for Reallocation from Federal Use to Non-Federal Use Pursuant to Section 6401(a) of the Middle Class Tax Relief and Job Creation Act of 2012, Report to the President, at 1-2 (Feb. 2013), available at http://www.ntia.doc.gov/files/ntia/publications/1675-1710_mhz_report_to_president_02192013.pdf (indicating that CSMAC anticipates recommendations from Working Group 1 regarding the size of exclusion zones and coordination of commercial system implementation within protection zones in the 1695-1710 MHz band).

[15] Comments of the Consumer Electronics Association at 9-10; and Comments of Interdigital, Inc. at 9-10.

UTC and numerous other commenting parties also continue to support the proposal to integrate the 3.65 GHz band with the 3.5 GHz band.[16] As UTC explained, this will provide additional flexibility for utilities and others in the 3.65 GHz band to make effective use of 150 MHz of spectrum.[17] In addition, it will provide an opportunity to improve coordination in the 3.65 GHz band, using the SAS database.[18] Finally, a common set of technical rules in both the 3.5 GHz and 3.65 GHz bands will promote equipment development and interoperability.[19] Therefore, the Commission should integrate the 3.65 GHz band with the 3.5 GHz band, as proposed in the NPRM.

III. The Commission Should Establish the SAS Database and Adopt a Licensed-by-Rule Framework as well as Other Technical Rules to Promote Effective and Efficient Use of the Band.

UTC and numerous commenting parties support the establishment of the SAS to help coordinate operations in the band.[20] UTC and others support the requirement for licensees to

[16] Comments of Google, Inc. in ET Docket No. 12-354 at 13 (filed Feb. 20, 2013); Comments of Redline Communications, Inc. in ET Docket No. 12-354 at 4-5 (filed Feb. 20, 2013); Comments of Interdigital, Inc. at 16; Comments of the Software Defined Radio Forum dba Wireless Innovation Forum at 7-8; Comments of the Wireless Internet Service Providers Association at 18-20; and the Public Interest Spectrum Coalition at 35-37.

[17] Comments of UTC, EEI and NRECA at 15, *citing* NPRM at ¶17 (noting that the 3.6 GHz band is used for a number of important services, including those to utilities.) *See also* Comments of the IEEE 802 LMSC at 2 ("If small-cell deployment flourishes in the 3550-3650 MHz band under the proposed rules, then the "lightly-licensed" 3650-3700 MHz band could become significantly deployed for backhaul service of those same small cells.")

[18] *See e.g.* Comments of Great River Energy at 3 ("The 3.65 GHz band's lightly licensed approach has had its challenges. Not all users register in the database and some users have registered in the database, but are no longer using that service making the database inaccurate and ineffective. GRE supports using cognitive radios and other technical means to reduce interference with neighboring users of the band.")

[19] Comments of the Information Technology Industry Council at 3 and 5-6 (stating that "ITI believes that to maximize the value of this spectrum for the American public, the 50 MHz of spectrum in the 3650-3700 MHz band should be included in the Commission's plans as well." Also stating that "[t]he current users of the 3650-3700 MHz spectrum could also be eligible for priority access to the larger, 3550-3700 band. As the Commission notes, economies of scale could drive down the cost of equipment in this band, benefiting current providers and end-users"); Comments of Motorola Solutions, Inc. at 4 ("MSI is generally supportive of expanding the SAS concepts above to the 3650-3700 MHz band as well, as this approach would expand the economies of scale of equipment for a large user class.")

[20] Comments of UTC, EEI and NRECA at 19-21. *And see* Comments of Great River Energy at 2 ("GRE supports the mutli-tiered shared access model and the management of the Citizens Broadband Service be managed by a spectrum

register their geolocation information into the SAS database.[21] This is necessary to coordinate operations in real-time and to prevent interference, particularly in the Priority Access tier where communications will be used for mission critical operations that are intolerant of interference. Finally, UTC and others also support the need to protect proprietary and classified information on the database, owing to the sensitive nature of disclosure of information regarding critical infrastructure and government operations.[22]

UTC reiterates its support for the Commission's proposal to adopt a licensed-by-rule framework for the 3.5 GHz band, as well as the 3.65 GHz band if the FCC harmonizes the rules for both bands. This is supported by various comments on the record.[23] As WISPA recognizes "'License by rule' with SAS requirements represents an evolution of *ad hoc* unlicensed systems where spectrum coordination often occurs after deployment, an inefficient and outdated approach for avoiding interference."[24] Also as the WiMAX Forum states, "the licensed by rule approach "would streamline deployment as compared to the 'light licensing' scenario of the current 3650-

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access system (SAS)."); Comments of SRP at 1 (stating that "SRP supports the Commission's proposal to establish a Spectrum Access System (SAS) database to aid in managing interference issues."). *See also* Comments of Google, Inc. at 23 (stating that a robust SAS will make efficient use of the band and protect incumbent users.); and Comments of Motorola Solutions, Inc. at 2 (stating that "[t]he utilization of an authorized SAS database approach, if architected properly, will allow the Commission to dynamically control access to and efficiently manage the use of 3.5 GHz spectrum.")

[21] Comments of UTC, EEI and NRECA at 19-21. *And see* Comments of Great River Energy at 3 ("GRE supports automatic database registration and also deregistration.")

[22] Comments of UTC, EEI and NRECA at 20. *See also* Comments of Interdigital, Inc. at 20-21 (supporting protecting classified information on the SAS database).

[23] Comments of UTC, EEI and NRECA at 11-13. *See also e.g.* Comments of Great River Energy at 2 ("GRE agrees with Commission in that a license-by-rule approach would be preferred above unlicensed operation in the Priority Access and GAA tiers. If utilities are to make use of the 3.5 GHz band for mission critical communications, protection from interference is of paramount importance."); Comments of Interdigital at 18 ("InterDigital agrees with the use of the license-by-rule approach for both the Priority Access and GAA tiers. We believe that the license-by-rule approach helps in implementing a more dynamic use of spectrum than traditional licensing or temporary licensing, thus increasing the spectrum availability at a given time."); and Comments of the Public Interest Spectrum Coalition at 14 ("The Commission is also correct to choose a license-by-rule framework where, as here, the public interest purposes of the band can be achieved without more restrictive licensing.")

[24] Comments of the Wireless Internet Service Providers Association at 6.

3700 MHz band."[25] Therefore, the Commission should adopt its proposal to adopt the license-by-rule frame work for the 3.5 GHz band, rather than an unlicensed or a lightly-licensed framework.

While UTC continues to support generally the technical requirements proposed by the Commission, UTC reiterates its opposition to any regulations that would restrict operations in the Priority Access tier to indoor use only,[26] and there are numerous parties on the record that also oppose any such restrictions, particularly as applied to utilities and other critical infrastructure industries.[27] Only one commenting party has supported restricting operations to indoor only, and then only for operations in the Priority Access tier – not for the GAA tier.[28] UTC opposes restricting Priority Access tier operations to indoor only, because such restrictions would unnecessarily preclude utilities from using the band for smart grid and many other outdoor applications.[29] In any event, there is nothing in the record that would support restricting

[25] Comments of the WiMAX Forum in ET Docket No. 12-354 at 7 (filed Feb. 20, 2013).

[26] *But see Id*. at ¶72 (stating that "[d]ue to the propagation characteristics of the 3.5 GHz Band and the relatively low power levels we propose, we anticipate that Priority Access users would operate primarily indoors, though it may be possible to extend the construct to outdoor deployments.") *But see Id*. at ¶150 (asking a variety of questions regarding possible limitations on outdoor use of 3.5 GHz small cells).

[27] Comments of Interdigital, Inc. at 13; See also Comments of Wireless Internet Service Providers Association at 18 (supporting indoor use of small cell use, "except where the proposed use necessarily requires short-range outdoor use," including "small cells deployed at outdoor electric grids or along pipelines."); Comments of Microsoft at 2 (supporting indoor and outdoor use of small cells, but only in the GAA tier); Comments of Motorola at 3 (supporting indoor and outdoor use of small cells, which could be managed through the SAS database); Comments of Spectrum Bridge in ET Docket No. 12-354 at 20 (filed Feb. 20, 2013)("Indoor and outdoor use is needed to realize the full benefit of the 3.5 GHz band.")

[28] Comments of the Public Interest Spectrum Coalition at 19-20 ("PISC believes that a Priority Access tier that is licensed by rule under Section 307(e), without an auction or user fees, and with protection against interference from opportunistic "General Authorized Access" users, is justified only if it is limited to indoor use by institutional users with "critical quality-of-service needs," as proposed in the NPRM."). Note that the Commission did *not* propose to restrict Priority Access tier operations for indoor only use. Rather, the Commission suggested that "[d]ue to the propagation characteristics of the 3.5 GHz Band and the relatively low power levels we propose, we anticipate that Priority Access users would operate primarily indoors, though it may be possible to extend the construct to outdoor deployments." NPRM at ¶72.

[29] *See* NPRM at ¶150 (seeking comment on possible indoor/outdoor use of the 3.5 GHz generally, and specifically asking "whether the benefits of limiting non-federal use of the 3.5 GHz Band to indoor spaces outweigh the costs.")

operations to indoor use only in order to protect incumbent users in the band, which was the Commission's stated concern in the NPRM.[30]

IV. CONCLUSION

WHEREFORE, the premises considered, UTC respectfully requests that the Commission act as requested herein and in its previously filed comments on the record. Specifically, the Commission should expand eligibility to include critical infrastructure industry entities, including utilities, in the Priority Access tier of the 3.5 GHz Band. It should also develop exclusion zones based upon the limited interference potential that small cells represent to incumbent radar and FSS in the band, recognizing that Priority Access and GAA tiers need to be able to operate near the coastal areas where 60% of the population of the United States lives. The Commission should integrate the 3.65 GHz and 3.5 GHz bands together to provide 150 MHz of capacity for small cell spectrum sharing. Finally, the Commission should develop technical rules and equipment requirements to enable dynamic frequency selection capabilities for spectrum sharing and to protect against interference from co-and adjacent channel operations.

Respectfully submitted,

/ss/
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[30] Despite its interest in fixed satellite service incumbents, not even the Satellite Industry Association suggests imposing an indoor only restriction. *See* Comments of the Satellite Industry Association at 13 ("SIA recognizes that imposing an indoor-only limitation would not permit all the usage scenarios for small cells that the Commission currently envisions, and it would also make enforcement of exclusion zone boundaries more difficult.")